substitute hop channel were inherent to the system of Bergström. Applicant respectfully disagrees with the Examiner's interpretation of Bergström as discussed below.

In paragraph 2, the Office Action rejects claims 1-8, 12, 14, 16-23, 27 and 29 under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 4,716,573 to Bergström et al. ("Bergström"). Applicant respectfully traverses this rejection.

In accordance with the present invention, a hop channel is selected for use in a channel hopping communication system that includes a sequence of hop channels, wherein the sequence comprises a set of forbidden hop channels and a remaining set of allowable hop channels. Selection involves selecting a hop channel from the sequence as a function of a present phase. If the selected hop channel is an allowable hop channel, then the selected hop channel is used for communication during the present phase. If the selected hop channel is a forbidden hop channel, then a time-varying parameter is used to select a substitute hop channel from the set of allowable hop channels. The substitute hop channel is then used for communication during the present phase. With this strategy, the resultant hopping sequence is identical to the original hopping sequence whenever the original sequence calls for an allowable hop channel. In all other cases, a substitute hop channel is dynamically selected from the set of allowable hop channels.

Bergström discloses a method for reducing the effect of narrowband jammers in communication between two stations utilizing frequency hopping. A new frequency at a hop is not selected merely with the aid of random number generation, but also with learnt knowledge of the radio communication surroundings affecting the

selection. The frequencies (f_1 ... fn) available for frequency hopping are stored with different status in a list (X). The status of the different frequencies is determined by quality measurement of the channel selected in a radio communication, and by examining the status of the selected frequency in relation to the status of the remaining frequencies.

It is well known that in order to support a rejection under 35 U.S.C. §103 the Office Action must set forth a *prima facie* case of obviousness. Furthermore, it is well known that in order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some motivation or suggest to modify/combine that applied references. Second, there must be a reasonable expectation of success. Finally, the combination must teach each and every claimed element. In the presented case, claims 1-8, 12, 14, 16-23, 27 and 29 are not properly rejected under 35 U.S.C. §103, for at least the reason that Bergström fails to disclose or suggest each and every claimed feature as discussed below.

Independent claim 1 defines a method of selecting a hop channel for use in a channel hopping communication system that includes a sequence of hop channels, wherein the sequence comprises a set of forbidden hop channels and a remaining set of allowable hop channels. The method includes, *inter alia*, the steps of selecting a hop channel from the sequence as a function of a present phase; using the selected hop channel for communication during the present phase if the selected channel is an allowable hop channel; and if the selected channel is a forbidden hop channel, using a time-varying parameter to select a substitute hop channel from the set of allowable hop channels. In addition, selecting the substitute channel includes, *inter alia*, the steps of determining an index value, *I*, as a function of the time-varying

parameter; designating one of the allowable hop channels in the sequence of hop channels as a first hop channel; starting at the first hop channel, processing the sequence of hop channels to determine an *i*th allowable hop channel in the sequence; and selecting the *i*th allowable hop channel for use as the substitute hop channel.

As discussed above, Bergström discloses a method wherein depending on a status value, a first frequency or a second frequency is utilized for communications. However, even if one were to equate the second frequency of Bergström to the claimed substitute hop channel, nowhere in Bergström is there any disclosure or suggestion that the second frequency is selected using the claimed steps (i.e., determining an index value and using the index to step through the allowable channels).

In rejecting claim 1, the Office Action asserts that Bergström discloses a method as defined by claim 1 inasmuch as Bergström discloses a method of determining, based on SNR measurement, allowable and prohibited frequencies in a frequency hopping system. More specifically, the Office Action asserts that Bergström discloses selecting a substitute hop channel as recited in claim 1, inasmuch as Bergström discloses determining whether not a second frequency should be selected based on a status value. To support this rejection, the Office Action points to column 2, lines 20-27 and column 3, lines 27-33 of Bergström. This assertion is unfounded for the following reasons.

The cited passages (i.e., column 2, lines 20-27 and column 3, lines 27-33 of Bergström) discloses that a status value is generated based on the quality of the channel a characteristic signal is transmitted over. Then, based on the status value,

it is determined whether or not the first frequency (i.e., the channel the characteristic signal was transmitted over) or a second frequency should be used as the communicating frequency. The second frequency represents a mapping frequency obtained from a previous measurement giving disturbance free communication. Furthermore, Bergström discloses that the mapping frequency is equal to $X(r_n, 1)$ where r_n is a random number. However, as discussed above, nowhere in Bergström is there any disclosure or suggestion of the steps of determining an index value as a function of the time-varying parameter, designating one of the allowable hop channels in the sequence as a first hop channel; determining the *i*th allowable hop channel starting from the first hop channel; and using the *i*th allowable hop channel as the substitute hop channel.

Therefore, even if one skilled in the art were to interpret the status value and the second frequency of Bergström to be equivalent to the claimed time-varying parameter and substitute channel, respectively, Bergström still fails to disclose or suggest using the status value to determine an index value, *i*, which is then used to proceed through the sequence of allowable channels. To the contrary, Bergström discloses that the mapping frequency is based on a random number, not an index value as claimed.

Furthermore, the claimed steps for determining the substitute hop channel are not inherent to the method of Bergström (as suggested by the Examiner in the personal interview) for at least the reason that the claimed steps do not necessarily flow from the mapping function of Bergström. Accordingly, independent claim 1 is patentably distinguishable over Bergström.

Independent claim 16 defines a hop channel selector for use in a channel hopping communication system that includes a sequence of hop channels, wherein the sequence comprises a set of forbidden hop channels and a remaining set of allowable hop channels. The hop channel selector includes, *inter alia*, logic configured to use a time-varying parameter to select a substitute hop channel from the set of allowable hop channels if the selected hop channel is not an allowable hop channel. The logic includes, *inter alia*, logic configured to carry out the steps of independent claim 1. Accordingly, independent claim 16 is patentably distinguishable over Bergström for at least those reasons presented above with respect to claim 1.

Claims 2-8, 12, 14, 17-23, 27 and 29 variously depend from independent claims 1 and 16. Therefore, claims 2-8, 12, 14, 17-23, 27 and 29 are patentably distinguishable over Bergström for at least those reasons presented above with respect to claim 1 and 16.

Furthermore, claims 2, 3, 17 and 18, which variously depend from independent claims 1 and 16, further define that the time-varying parameter is a clock value. Therefore, claims 2, 3, 17 and 28 are patentably distinguishable over Bergström not only for those reasons presented above with respect to claims 1 and 16, but also because Bergström fails to disclose or suggest the time-varying parameter is a clock value.

In rejecting claims 2, 3, 17 and 28, the Office Action asserts that it would have been obvious to one skilled in the art that the clock value could have been the randomly selected value. However, the Office Action fails to provide any evidence that one skilled in the art would have been motivated to use the clock value (i.e.,

there is not evidence of the desireability of using a clock value). Furthermore, Bergström discloses that the second frequency is determined based on a random *number* not a randomly selected parameter as suggested by the Office Action.

For at least those reasons presented above, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 1-8, 12, 14, 16-23, 27 and 29 in view of Bergström.

This application is in condition for allowance. Notice of same is earnestly solicited. Should the Examiner have any questions regarding this application, he is invited to call the undersigned at the telephone number provided below.

Respectfully submitted,

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